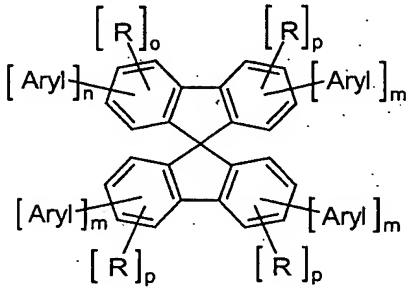
What is claimed is:

1. An organic electroluminescent device comprising an anode, a cathode and at least one emission layer comprising at least one matrix material which is doped with at least one phosphorescent emitter, characterized in that at least one hole blocking layer is incorporated between the emission layer and the cathode and comprises at least one compound of the formula (1)



(Formula 1)

where the symbols and indices used are:

Aryl is the same or different at each instance and is an aromatic or hetero-aromatic ring system which has from 1 to 40 aromatic carbon atoms and may be substituted by one or more R radicals;

R is the same or different at each instance and is H, F, Cl, Br, I, NO_2, CN or a straight-chain, branched or cyclic alkyl or alkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^1C=CR^1-$, $-C\equiv C-$, $Si(R^1)_2$, $Ge(R^1)_2$, $Sn(R^1)_2$, -O-, -S- or $-NR^1-$, and in which one or more hydrogen atoms may be replaced by F or an aromatic R^1 group, where two or more substituents R or R with aryl may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^1 is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms, where two or more substituents R^1 or R^1 with R and/or aryl may also form a further mono- or polycyclic, aliphatic or aromatic ring system;

n is the same or different at each instance and is 1, 2, 3 or 4;

m is the same or different at each instance and is 0, 1, 2, 3 or 4;

o is the same or different at each instance and is 0, 1, 2 or 3;

p is the same or different at each instance and is 0, 1, 2, 3 or 4;
with the proviso that that the sum of n + o = 4 and the sum of m + p = 4, and with the further proviso that the hole blocking material is not identical to the matrix material, and with the further proviso that aryl does not contain any diazine, triazine or tetrazine group.

2. The organic electroluminescent device as claimed in claim 1, characterized in that a hole injection layer and/or a hole transport layer and/or an electron injection layer and/or an electron transport layer and optionally further layers are present.

3. The organic electroluminescent device as claimed in claim 1 and/or 2, characterized in that the hole blocking layer contains at least 50% of compounds of the formula (1).

4. The organic electroluminescent device as claimed in claim 3, characterized in that the hole blocking layer consists only of compounds of the formula (1).

5. The organic electroluminescent device as claimed in one or more of claims 1 to 4, characterized in that, for compounds of the formula (1):

Aryl is the same or different at each instance and is an aromatic or heteroaromatic ring system which has from 1 to 20 aromatic carbon atoms and may be substituted by one or more R radicals;

R is the same or different at each instance and is H, F, Cl, NO_2, CN, $N(R^1)_2$ or a straight-chain, branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^1C=CR^1-$, $-C\equiv C-$, $Si(R^1)_2$, $Ge(R^1)_2$, $Sn(R^1)_2$, -O-, -S- or $-NR^1-$, and in which one or more hydrogen atoms may be replaced by F or an aromatic R^1 group, where two or more substituents R may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^1 is as defined under claim 1;

n is the same or different at each instance and is 1 or 2;

m is the same or different at each instance and is 0, 1 or 2;
o is the same or different at each instance and is 2 or 3;
p is the same or different at each instance and is 2, 3 or 4;
in these compounds, the aryl substituent is attached via positions 2 and/or 4, or, where present, also via positions 5, 7, 2', 4', 5' and/or 7'.

6. The organic electroluminescent device as claimed in claim 5, characterized in that the following applies to compounds of the formula (1):

Aryl is the same or different at each instance and is composed of phenyl and/or pyridine groups, contains a total of from 5 to 18 aromatic carbon atoms and may be substituted by one or more nonaromatic R radicals;
R is the same or different at each instance and is H, F, NO_2, CN or a straight-chain, branched or cyclic alkyl or alkoxy group having from 1 to 10 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^1C=CR^1-$, $-C\equiv C-$, $Si(R^1)_2$, $Ge(R^1)_2$, $Sn(R^1)_2$, -O-, -S- or $-NR^1-$, and in which one or more hydrogen atoms may be replaced by F or an aromatic R^1 group, where two or more substituents R may form a further mono- or polycyclic, aliphatic or aromatic ring system;
R^1 is as defined under claim 1;
n is 1 at each instance;
m is the same or different at each instance and is 0 or 1;
o is 3 at each instance;
p is the same or different at each instance and is 3 or 4;
in these compounds, the aryl substituent and the substituents R which are not H are attached via position 2, or else via positions 7, 2' and/or 7'.

7. The organic electroluminescent device as claimed in one or more of claims 1 to 6, characterized in that the compounds of the formula (1) have a total of two aryl substituents which are attached to the spirobifluorene unit either via positions 2 and 7 or via positions 2 and 2', or in that they contain a total of four aryl substituents which are attached to the spirobifluorene unit via positions 2, 2', 7 and 7'.

8. The organic electroluminescent device as claimed in one or more of claims 1 to 7, characterized in that the glass transition temperature of the compounds of the formula (1) is > 100°C.

9. The organic electroluminescent device as claimed in one or more of claims 1 to 7, characterized in that the glass transition temperature of the compounds of the formula (1) is > 140°C.

10. The organic electroluminescent device as claimed in one or more of claims 1 to 9, characterized in that the layer thickness of the hole blocking layer is from 1 to 50 nm.

11. The organic electroluminescent device as claimed in one or more of claims 1 to 10, characterized in that the hole blocking layer directly adjoins the cathode or the electron injection layer without use of an electron transport layer.

12. The organic electroluminescent device as claimed in one or more of claims 1 to 11, characterized in that the matrix material is selected from the classes of the carbazoles, of the ketones and imines, of the phosphine oxides, of the phosphine sulfides, of the phosphine selenides, of the phosphazines, of the sulfones, of the sulfoxides, of the silanes, of the polypodal metal complexes or of the oligophenylenes based on spirobifluorenes.

13. The organic electroluminescent device as claimed in one or more of claims 1 to 12, characterized in that the phosphorescent emitter has at least one element of atomic number greater than 36 and less than 84.

14. The organic electroluminescent device as claimed in claim 13, characterized in that the phosphorescent emitter contains at least one element from the group of molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium.

15. The organic electroluminescent device as claimed in one or more of claims 1 to 14, characterized in that one or more layers are coated by a sublimation process.

16. The organic electroluminescent device as claimed in one or more of claims 1 to 14, characterized in that one or more layers are coated by the OVPD process (organic vapor phase deposition) or with the aid of carrier gas sublimation.

17. The organic electroluminescent device as claimed in one or more of claims 1 to 14, characterized in that one or more layers are applied by a printing process.

18. The use of the design of the electronic devices as claimed in one or more of claims 1 to 17 for organic transistors, organic integrated circuits, organic solar cells, organic laser diodes or organic photoreceptors.